REMARKS

In the Final Office Action, claims 1, 2, 5, 6, 10-13, 15, 19, 21, 22 and 24-27 have been rejected under 35 U.S.C. § 102(b) as being anticipated by one or more references (i.e. Culpepper et al., U.S. Patent No. 4,021,807, Maloney et al., U.S. Patent No. 4,728,959, or Anderson et al., U.S. Patent No. 3,680,121) that have been cited by the Examiner. In addition, claims 2-4, 7-9, 11-13, 17, 20, 22 and 25-28 have been rejected under 35 U.S.C. § 103(a) as being unpatentable in view of various references, taken either alone or in combination with other references. Also in the Final Office Action, the Examiner has interpreted claims 8-9 and 11 as invoking 35 U.S.C. § 112, 6th paragraph (means plus function language). Lastly, the Examiner has objected to claim 2 under 37 CFR 1.75 as lacking antecedent basis for the term "said phase sensing circuit."

In response, Applicant has filed this Request for Continued Examination (RCE). Enclosed herewith is an RCE transmittal and an RCE fee. Also in this RCE, independent claims 1, 19 and 24 have been amended to now recite a system (claims 1 and 24) or method (claim 19) of locating a moveable object in a structure with a signal having a wavelength, λ, wherein a signal path distortion of the signal is caused by the structure and is characterized by the signal wavelength, λ. Support for these amendments is found in the specification on page 2 at lines 1-14 and on page 9 at lines 1-7. Also in this RCE, claim 2 has been amended to overcome the Examiner's antecedent basis objection and claim 13 has been amended to correct an obvious typographical error.

Amendments to the claims have been presented herein to improve the readability of the claims and to point out the features which distinguish the present invention over the cited art. Also, these amendments have been made to more clearly define the structure and cooperation of structure for the present invention. Claims 1-13, 15, 17 and 19-28 remain pending.

Objection under 37 CFR §1.75

In the Final Office Action, the Examiner has objected to claim 2 under 37 CFR §1.75 as lacking antecedent basis for the term "said phase sensing circuit."

In response, claim 2 has been amended to replace the term "wherein a said phase sensing circuit is located at each said base station site" with the term "wherein said at least one phase sensing circuit is a plurality of phase sensing circuits, with one said phase sensing circuit located at each said base station site."

With these amendments, Attorney for Applicant respectfully contends that the rejection under 37 CFR §1.75 has been overcome and should be withdrawn.

Rejections under 35 U.S.C. § 102(b)

In the Final Office Action, claims 1, 5-6, 15, 19, 21-22 and 24 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Culpepper et al. (U.S. Patent No. 4,021,807). Specifically, the Examiner has indicated that Culpepper et al. disclose an emitter for broadcasting a signal having a wavelength longer than a feature size of 2.8

feet and a structure for storing currency, e.g. a briefcase, suitcase, bag or backpack, that has at least one dimension smaller than 2.8 feet. Also, claims 1, 5, 10-13, 15, 19, and 24-27 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Maloney et al. (U.S. Patent No. 4,728,959). In particular, the Examiner has indicated that Maloney et al. disclose an emitter for broadcasting a signal having a frequency in the HF, VHF, or UHF range and that this range encompasses 27MHz, which is the value used by Applicant. Moreover, claims 1-2, 10-11, 15, 19, 21 and 24-25 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Anderson et al. (U.S. Patent No. 3,680,121). In detail, the Examiner has indicated that Anderson et al. disclose an emitter for broadcasting a tone burst signal having a wavelength of 310,000 feet, and has indicated that any typical structure has at least one dimension that is smaller than 310,000 feet.

In this RCE, all independent claims (i.e. claims 1, 19 and 24) have been amended and now recite a system (claims 1 and 24) or method (claim 19) for locating a moveable object inside a structure having structural features that are characterized by a feature size. In addition, all independent claims also require an emitter that is coupled to the object for broadcasting a signal having a wavelength, λ, that is longer than the feature size, and wherein a signal path distortion of the signal is caused by the structure and is characterized by the signal wavelength, λ.

As indicated by the specification of the above-captioned application, the use of a wavelength, λ, that is longer than the feature size of a structure reduces signal path

distortion caused by the structural features. Specifically, the specification indicates that this signal path distortion can include perturbations caused by diffraction, reflection and distortions arising from structural features that act as signal waveguides (see e.g. page 2 at lines 1-14). Examples of structural features are identified in the specification on page 2 at lines 1-14 and include rooms, hallways and staircases. In addition, an exemplary frequency of 27Mhz (which corresponds to a signal wavelength of approximately 36 feet) is disclosed for use in the present invention (see e.g. page 4 at lines 11-12). Functionally, the reduction of signal path distortion increases the accuracy of locating systems (claims 1 and 24) and methods (claim 19) which rely on phase measurements to calculate location.

No such structure or cooperation of structure is either taught or suggested by any of the cited references (i.e. Culpepper et al., Maloney et al. or Anderson et al.). Specifically, none of the references cited by the Examiner disclose the use of a signal having a wavelength, λ, that is longer than a feature size of a structure (e.g. rooms, hallways and staircases) for locating an object that is inside the structure and wherein a signal path distortion of the signal is caused by the structure and is characterized by the signal wavelength, λ. Instead, and quite unlike the present invention, Culpepper et al. propose a scheme for locating a packet of currency after the packet has been removed from a cash drawer. As the Examiner has correctly pointed out, Culpepper et al. use a signal having a wavelength of approximately 2.8 feet. Thus, the signal has a wavelength much shorter than a feature size as defined by the present invention (i.e. a

room, hallway or staircase). The Examiner, in rejecting claims 1, 19 and 24, has indicated that Culpepper et al. contemplate locating a currency packet in a structure for storing currency and lists briefcases, suitcases, bags and backpacks as examples. However, none of these "structures" (i.e. briefcases, suitcases, bags and backpacks) are mentioned in the Culpepper et al. reference. Nor is there any mention in Culpepper et al. that their proposed system locates a currency packet in a "structure for storing currency." Instead, the system disclosed by Culpepper et al. locates a currency packet "after removal from a cash drawer" (see for example the Abstract of Culpepper et al.). Accordingly, Attorney for Applicant respectfully contends that Culpepper et al. do not disclose a system for locating an emitter inside a structure with a signal having a wavelength, λ, that is longer than the feature size of a structure as now claimed for the present invention.

With regard to the Maloney et al. reference, the Examiner has indicated that this reference discloses a frequency range (i.e. HF, UHF and VHF) that encompasses the frequency suggested by Applicant (i.e. 27MHz). However, Attorney for Applicant contends that the disclosure of such a large range (i.e. 2MHz – 1GHz) does not teach or suggest the use of a signal having a wavelength, λ, that is longer than the feature size of a structure as claimed for the present invention. In particular, the large range suggested by Maloney et al. includes signals that are clearly outside the wavelength range required by independent claims 1, 19 and 24 for the present invention. Importantly, within this large range, Maloney et al. indicate that short wavelength signals

are preferable (over long wavelength signals) to reduce the spacing between antenna elements at each receiver (see Maloney et al., Col. 3, lines 40-45). Thus, unlike the present invention which uses long wavelength signals to reduce signal path distortion, Maloney et al. suggest the use of short wavelengths. With this in mind, Attorney for Applicant contends that Maloney et al. do not teach or suggest a system for locating an emitter inside a structure with a signal using a wavelength, λ, that is longer than the feature size of a structure as now claimed for the present invention.

The Examiner has also cited Anderson et al. as anticipating claims 1, 19 and 24 of the present invention. In support of this assertion, the Examiner has indicated that Anderson et al. disclose an emitter for broadcasting a tone burst signal having a wavelength of 310,000 feet, and has further indicated that any typical structure has at least one dimension that is smaller than 310,000 feet. However, as amended, all independent claims now require the use of a locating signal having a wavelength, λ, that is longer than the feature size of a structure, and wherein a signal path distortion of the signal is caused by the structure and is characterized by the signal wavelength, λ.

No such signal is either taught or suggested by the Anderson et al. reference. Instead, and quite unlike the present invention which is directed at locating an object in a structure, Anderson et al. is directed toward locating vehicles in a service area. As such, Anderson et al. disclose the use of a short tone burst of frequency 3150kz that is frequency modulated onto the carrier of a voice communication transmitter. The skilled artisan will quickly recognize that the distortion of this FM carrier signal, as it interacts

with a structure, will be characterized by the carrier frequency. Moreover, and importantly for the present analysis, Anderson et al. do not disclose the use of a carrier frequency having a corresponding wavelength that is greater than the feature size of a structure. Thus, Anderson et al. do not teach or suggest the use of a locating signal having a wavelength, λ, that is longer than the feature size of a structure, and wherein a signal path distortion of the signal is caused by the structure and is characterized by the signal wavelength, λ. Moreover, unlike the present invention which uses long wavelength signals to reduce signal path distortion, Anderson et al. suggest the use of a spaced dispersed antenna to minimize errors due to multipath reflections (see Col. 1, lines 57-58).

For at least the reasons cited above, Attorney for Applicant respectfully contends that independent claims 1, 19 and 24, as amended, are not anticipated by Culpepper et al., Maloney et al. or Anderson et al. Further, since pending claims 2-13, 15, 17, 20-23 and 25-28 each depend either directly or indirectly from independent claim 1, 19 or 24, they are likewise allowable. For the reasons set forth above, Applicant believes that the basis for rejecting claims under 35 U.S.C. § 102(b) has been overcome and the rejections should be withdrawn.

Rejections under 35 U.S.C. § 103(a)

In the Final Office Action, claims 2 and 4 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Maloney et al. (U.S. Patent No. 4,728,959), further in

view of Yokev (U.S. Patent No. 5,583,517), and claim 3 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Culpepper et al. (U.S. Patent No. 4,021,807), further in view of Yokev '517. In addition, the Examiner has rejected claim 7 under 35 U.S.C. § 103(a) as being unpatentable over either of Culpepper et al. or Maloney et al., and has rejected claims 8-9, 17 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Maloney et al. Also in the Final Office Action, claims 11-13, 17, 22 and 25-28 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Culpepper et al. and claims 12-13, 17 and 26-27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Anderson et al. Lastly, claim 28 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over either of Maloney et al. or Anderson et al.

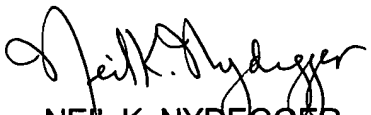
As indicated above, all independent claims (i.e. claims 1, 19 and 24) have been amended and are now directed to subject matter which is patentably distinguishable from Culpepper et al., Maloney et al. and Anderson et al. With these amendments, Attorney for Applicant respectfully contends that the teaching that is lacking in Culpepper et al., Maloney et al. and Anderson et al. is not provided by the additionally cited reference (i.e. Yokev). Specifically, Yokev fails to teach or suggest a system (or method) for locating an emitter that is positioned in a structure using phase information from an emitter signal having a wavelength, λ, that is longer than a feature size of a structure.

In view of the arguments presented above, for distinguishing amended independent claims 1, 19 and 24 of the present invention from Culpepper et al., Maloney et al., Anderson et al. and Yokev, Attorney for Applicant respectfully contends that these independent claims are now allowable. Accordingly, since rejected claims 2-13, 15, 17, 20-23 and 25-28 each depend directly or indirectly from independent claim 1, 19 or 24, these claims are also allowable. For the reasons set forth above, Applicant believes the basis for rejecting claims under 35 U.S.C. § 103(a) has been overcome and the rejections should be withdrawn.

In conclusion, Applicant respectfully asserts that claims 1-13, 15, 17 and 19-28 are patentable for the reasons set forth above, and that the application is now in a condition for allowance. Accordingly, an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned at 619-688-1300 for any reason that would advance the instant application to issue.

Dated this 10th day of December, 2004.

Respectfully submitted,



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